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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/755,483	01/05/2001	Deyang Song	5416P001	5096

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EXAMINER	
LAMBRECHT, CHRISTOPHER M	
ART UNIT	**PAPER NUMBER**
2611	

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DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/755,483	SONG ET AL.	
	Examiner	Art Unit	
	Christopher M. Lambrecht	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 May 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5,6,13,19,21,27 and 28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5,6,13,19,21,27 and 28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 5/27/2005 have been fully considered but they are not persuasive.

On page 6 of Applicant's response filed 27 May 2005, Applicant submits that nothing in the references themselves or any other cited evidence suggests that a scheduling system that relies on segment characteristics, such as the Williard scheme cited in the Office action, can or even should be adapted for use with a scheme in which scheduling is performed independently of such characteristics, such as the De Bey '031 scheme relied upon. Examiner respectfully disagrees.

As referenced in Applicant's remarks, column 8, lines 44-49 and 54-59 of De Bey '031 as relied upon in the rejection of claim 28 provide evidence that a transmission schedules is computed according to a specified delay time that does not depend on time lengths of the segments. Although the cited portions of De Bey '031 suggest that the delay time (MRT) does not depend on the length of the segments, De Bey '031 very clearly discloses that the length of the segments does depend on the delay time (col. 8, ll. 51-54 describes how the video program is divided into video segment data packets which *must* be of a length such that one packet can be transmitted in the time of 1 MRT (i.e., the specified delay time)). Were this constraint not satisfied, the De Bey '031 system could not ensure that each receiver receive the video segments in a manner permitting continuous playback of the program (which, is a clearly disclosed goal of the De Bey '031 system, col. 8, ll. 33-41).

Furthermore, this constraint on the system of De Bey '031 is identified as an aspect of what Willard describes as "the simple way of scheduling transmission of a module..." in his description of the related art (col. 1, ll. 57-65). Williard goes on to state that this type of scheduling system presents various difficulties in the VOD scheduling process (col. 1, l. 65 - col. 2, l. 1), and that VOD systems which operate in a manner as described above are precisely what his invention seeks to improve (col. 2, ll. 1-2). Accordingly, Examiner submits that the teachings of Williard are directly applicable to the teachings of

De Bey '031, contrary to Applicant's assertion. Moreover, as cited in the previous rejections relying upon the combination of De Bey '031 and Willard, one would clearly be motivated to incorporate the teachings of Willard in order to reduce the difficulty associated with scheduling large numbers of segments (modules) transmitted by the system (Willard, col. 2, ll. 28-35 and col. 1, l. 57 – col. 2, l. 2).

Therefore, Examiner submits that the combination of De Bey '031 and Willard is not based on improper hindsight as alleged by Applicant, and as such, a prima facie case of obviousness has been established as set forth by 35 U.S.C. 103(a). Accordingly, the rejection will not be withdrawn.

Additional arguments submitted by Applicant are contingent upon the alleged deficiency in the combined teachings in De Bey '031 and Williard. In view of the above remarks, Examiner submits that all issues raised by Applicant related thereto have been alleviated. The following rejections reflect the original grounds of rejection set forth in the previous Office action as they apply to the newly amended claims.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 1, 2, 5, 6, 19, 21, and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over DeBey '031 (of record) in view of Willard (of record).

With regard to **claim 1**, De Bey '031 discloses a method, comprising determining a schedule for transmission times of various segments of digital content (col. 5, ll. 27-36; digital, see col. 5, l. 67 – col. 6, l. 2) across multiple channels (col. 8, ll. 13-20) so as to permit any number of content consumers (i.e., multiple subscribers, col. 6, ll. 54-60) to begin playback of said segments of digital content from an

origination point thereof (col. 10, ll. 1-6) within a waiting time of a request for such playback (col. 8, ll. 44-49). However, De Bey '031 fails to disclose the schedule is determined according to an earliest-deadline-first (EDF) process, wherein in the EDF process a next transmission time for one of the various segments of digital content is determined by first finding an earliest deadline amongst a list of current deadlines for each of the various segments and selecting this segment for transmission

In an analogous art, Willard discloses the schedule is determined according to an earliest-deadline-first (EDF) process (earliest maximum beginning time, col. 3, l. 64 – col. 4, l. 9, where a maximum beginning time constitutes a deadline), wherein in the EDF process a next transmission time for one of the various segments of digital content is determined by first finding an earliest deadline (earliest maximum beginning time) amongst a list of current deadlines for each of the various segments and selecting this segment for transmission (col. 4, l. 60 – col. 5, l. 12), for the purpose of reducing the difficulty associated with scheduling large numbers of segments (modules) transmitted by the system (col. 2, ll. 28-35 and col. 1, l. 57 – col. 2, l. 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of De Bey '031 to include the schedule is determined according to an earliest-deadline-first (EDF) process, as taught by Willard, for the purpose of reducing the number of segments that must be transmitted by the system in a method for determining a schedule for transmission of digital content.

As for **claim 2**, De Bey '031 and Willard together disclose the method of claim 1 (see above), wherein the various segments of digital content together comprise a movie (col. 5, ll. 27-29, and col. 4, l. 68).

As for **claim 5**, De Bey '031 and Willard together disclose the method of claim 4 (see above) wherein the earliest deadline so chosen is verified to be later than a finishing time for a last transmitted

segment (Willard, col. 6, ll. 26-32; ensures that the next earliest deadline is later than the finishing time for the most recently (i.e., last) transmitted segment).

As for **claim 6**, De Bey '031 and Willard together disclose the method of claim 4 wherein a new deadline for transmission of the selected segment is determined according to $T + t_i + t_d$, where T is a beginning time for the transmission of the selected segment, i is a segment number for the selected segment, t_i is the playback time of segment i and t_d is the waiting time (see De Bey '031, col. 8, ll. 65 – col. 9, ll. 57 and fig. 5; deadlines for each segment are scheduled according to T + n*MRT, which is equivalent to T + MRT + (n-1)*MRT for segments 1 through n, respectively; where T is the beginning time for the current (selected) segment, MRT is the playback time for a segment (slot length, col. 8, ll. 65-67), and (n-1)*MRT is the delay time).

As for **claim 19**, De Bey '031 and Willard together discloses the method of claim 1 (see above) wherein a transmission bandwidth of multiple times that of the multimedia presentation is allocated for transmission of the segments (see fig. 5, detail of transmission sequence; where multiple segments are transmitted within one MRT interval (e.g., MRT #48, 9 segments are transmitted), the allocated transmission bandwidth is inherently multiple times that of the multimedia presentation (i.e., the bandwidth required to transmit 1 segment in 1 MRT interval)) and each segment is transmitted repeatedly based on the computed schedule (col. 9, ll. 25-29).

As for **claim 21**, De Bey '031 and Willard together disclose the method of claim 1 further comprising receiving the segments transmitted over the broadcast network (col. 7, ll. 11-17), storing the segments in temporary storage (buffer memory 42, fig. 2), and playing back the segments as soon as the delay time has elapsed (playback begins at latest upon lapsing of maximum response time, col. 8, ll. 44-49).

With regard to **claim 28**, De Bey '031 discloses a server (scheduling/routing computer 30, fig. 2) configured to generate transmission schedules for each of a number of segments of a multimedia

presentation (col. 6, ll. 45-60) to be transmitted over a multiple channels of a broadcast network (col. 8, ll. 13-23). However, De Bey '031 fails to disclose said schedules are computed according to an earliest-deadline-first (EDF) process, wherein in the EDF process a next transmission time for one of the various segments of digital content is determined by first finding an earliest deadline amongst a list of current deadlines for each of the various segments and selecting this segment for transmission

In an analogous art, Willard discloses the schedule is determined according to an earliest-deadline-first (EDF) process (earliest maximum beginning time, col. 3, l. 64 – col. 4, l. 9, where a maximum beginning time constitutes a deadline), wherein in the EDF process a next transmission time for one of the various segments of digital content is determined by first finding an earliest deadline (earliest maximum beginning time) amongst a list of current deadlines for each of the various segments and selecting this segment for transmission (col. 4, l. 60 – col. 5, l. 12), for the purpose of reducing the difficulty associated with scheduling large numbers of segments (modules) transmitted by the system (col. 2, ll. 28-35 and col. 1, l. 57 – col. 2, l. 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of De Bey '031 to include the schedule is determined according to an earliest-deadline-first (EDF) process, as taught by Willard, for the purpose of reducing the number of segments that must be transmitted by the system in a method for determining a schedule for transmission of digital content.

4. **Claim 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over De Bey '031 and Willard as applied to claim 1 above, and further in view of De Bey '693 (of record).

With regard to **claim 13**, De Bey '031 and Willard together disclose the method of claim 1. However, they fail to disclose the deadlines associated with the various segments are computed according to a process wherein conflicts for transmissions over the multiple channels are resolved by scheduling a

segment with an earlier playback time closer to its deadline for transmission than a segment with a later playback time.

In an analogous art, De Bey '693 discloses the deadlines (transmission intervals) associated with the various segments are computed according to a process wherein conflicts (i.e., too many segments scheduled for transmission during a given transmission interval) for transmissions over the multiple channels are resolved by scheduling a segment with an earlier playback time closer to its deadline for transmission than a segment with a later playback time (col. 22, ll. 25-30, 34-36, and col. 23, ll. 30-45; see fig. 19: interval number 6 represents a transmission deadline for 4 segments (namely, 1,2,3, & 6); because of a bandwidth conflict, one segment must be moved out of interval 6; as illustrated in fig. 19, and described in col. 23, ll. 30-45, segment 6 (a later segment number than 1, 2, or 3) is moved to an earlier interval (interval 5) to resolve the conflict; hence, an earlier segment (1, 2, or 3) is scheduled closer to its deadline than a later segment (6)), for the purpose of not causing delay during playback from any of the starting points (col. 23, ll. 42-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of De Bey '031 and Willard to include disclose the deadlines associated with the various segments are computed according to a process wherein conflicts for transmissions over the multiple channels are resolved by scheduling a segment with an earlier playback time closer to its deadline for transmission than a segment with a later playback time, as taught by De Bey '693, for the purpose of not causing delay during playback from any of the starting points in a method for determining a schedule for transmission of multimedia content.

5. **Claim 27** is rejected under 35 U.S.C. 103(a) as being unpatentable over De Bey and Willard as applied to claim 1 above, and further in view of Aggarwal (of record).

With regard to claim 27, De Bey and Willard together disclose a method as recited in claim 1. However, they fail to disclose calculating an overlap period between an end of a current presentation and a beginning of a next presentation, to minimize interruptions therebetween.

In an analogous art, Aggarwal discloses calculating (col. 3, l. 60 – col. 4, l. 6, where devising a schedule for transmission of video segments inherently involves calculating) an overlap period (the period extending between beginning of segment A2 and end of segment D1, see bottom half of fig. 1, constitutes an overlap for transmission of segments of movie 1 and movie 2) between an end of a current presentation (end of segment D1, bottom half of fig. 1) and a beginning of a next presentation (beginning of segment A2, bottom half of fig. 1), to minimize interruptions therebetween, for the purpose of enabling the user to switch between movies one and two during the playback of either (col. 3 l. 60 – col. 4, l. 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of De Bey and Willard to include calculating an overlap period between an end of a current presentation and a beginning of a next presentation, to minimize interruptions therebetween, as taught by Aggarwal, for the purpose of enabling the user to switch between movies one and two during the playback of either, in a method for determining a schedule for transmission of a multimedia presentation.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. The following are suggested formats for either a Certificate of Mailing or Certificate of Transmission under 37 CFR 1.8(a). The certification may be included with all correspondence concerning this application or proceeding to establish a date of mailing or transmission under 37 CFR 1.8(a). Proper use of this procedure will result in such communication being considered as timely if the established date is within the required period for reply. The Certificate should be signed by the individual actually depositing or transmitting the correspondence or by an individual who, upon information and belief, expects the correspondence to be mailed or transmitted in the normal course of business by another no later than the date indicated.

Certificate of Mailing

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Please refer to 37 CFR 1.6(d) and 1.8(a)(2) for filing limitations concerning facsimile transmissions and mailing, respectively.

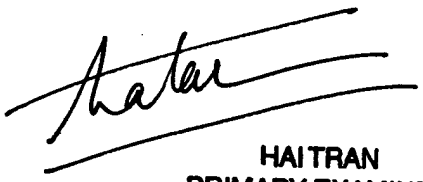
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Lambrecht whose telephone number is (571) 272-7297. The examiner can normally be reached on 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Grant can be reached on (571) 272-7294. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher M Lambrecht
Examiner
Art Unit 2611

CML



HAI TRAN
PRIMARY EXAMINER